

## CLAIM AMENDMENTS

1. (currently amended ) A method for calibrating a well-logging sensor adapted for disposal on a tool adapted for disposal in said well, comprising:  
emitting a first signal into a first calibration substance internally disposed within a channel in said tool proximate to the sensor;  
measuring a first sensor response from the first signal;  
emitting a second signal into a second calibration substance internally disposed within said channel in said tool proximate to the sensor;  
measuring a second sensor response from the second signal; and  
determining a sensor response function from the first sensor response and the second sensor response.
2. (original) The method of claim 1, wherein the sensor response function is a linear function.
- 3-5. (withdrawn)
6. (original) The method of claim 1, wherein the well-logging sensor is a neutron sensor.
7. (currently amended) The method of claim 6, wherein the neutron sensor is surrounded by water ~~and the first and second calibration substances are disposed in a channel within the neutron sensor.~~
8. (original) The method of claim 7, wherein one of the first calibration substance and the second calibration substance is air.
9. (original) The method of claim 7, wherein one of the first calibration substance and the second calibration substance is a polymer rod having a known effective porosity.
- 10-11. (withdrawn)
12. (currently amended) A method for calibrating a well-logging sensor adapted for disposal on a tool adapted for disposal in said well, comprising:

emitting a first signal into a first calibration substance internally disposed within a channel in said tool proximate to the sensor;  
measuring a first sensor response from the first signal;  
emitting a second signal into a second calibration substance internally disposed within said channel in said tool proximate to the sensor;  
measuring a second sensor response from the second signal; and  
emitting a third signal into a third calibration substance internally disposed within said channel in said tool proximate to the sensor;  
measuring a third sensor response from the third signal; and  
determining a sensor response function from the first sensor response, the second sensor response, and the third sensor response.

13-19. (withdrawn)

20. (currently amended) A method for calibrating a well-logging neutron sensor adapted for disposal on a tool adapted for disposal in said well, comprising:

emitting a first neutron signal with air disposed in a channel within said tool proximate the sensor;  
measuring a first neutron sensor response from the first neutron signal;  
emitting a second neutron signal with a polymer rod disposed in said channel proximate the sensor ~~channel~~;  
measuring a second neutron sensor response based on the second neutron signal; and  
determining a neutron sensor response function from the first neutron sensor response and the second neutron sensor response.

21. (original) The method of claim 20, wherein the neutron sensor response function is linear.

22. (withdrawn)

23. (currently amended) A method for calibrating a well-logging neutron sensor adapted for disposal on a tool adapted for disposal in said well, comprising:

emitting a first neutron signal with air disposed in a channel within said tool proximate the sensor;

measuring a first neutron sensor response from the first neutron signal;  
emitting a second neutron signal with a polymer rod disposed in said channel proximate  
the sensor ~~channel~~;  
measuring a second neutron sensor response based on the second neutron signal; and  
emitting a third neutron signal with water disposed in said channel proximate the sensor  
~~channel~~;  
measuring a third neutron sensor response based on the third neutron signal; and  
determining a neutron sensor response function from the first neutron sensor response  
and the third neutron sensor response.

24. (currently amended) A method of calibrating a well-logging sensor adapted for disposal  
on a tool adapted for disposal in said well, comprising:  
emitting a signal into each of at least two calibration substances internally disposed  
within a channel in said tool proximate to the sensor;  
measuring at least two sensor responses corresponding to the signals emitted into said  
disposed calibration substances; and  
determining a sensor response function from the at least two sensor responses.